

Unit 2.1: Atomic Structure

1. The atom is the smallest form of an element that still retains the properties of the element

a. It is the basic building block of matter

b. Proton, Neutron, Electron

2. Nucleus, electron cloud

a. Nucleus \rightarrow positively charged

i. Protons (p^+), neutrons (n^0)

ii. Protons \rightarrow positively charged

iii. Neutrons \rightarrow neutrally (n^0) charged

1. Neutrons act like "glue" for the nucleus

b. Electrons \rightarrow Negatively charged (e^-)

i. Electron cloud

ii. e^- arranged into shells or orbitals

iii. e^- are NOT moving in perfect orbits around the nucleus. Their movement is unpredictable.

iv. e^- cloud give approximate location

	Location	Charge	Mass
Proton	nucleus	$1+$	1 amu
Neutron	nucleus	0	1 amu
Electron	e^- cloud	$1-$	0.00054 amu

Special Fact

Proton \rightarrow # p^+ determines the identity of the element

Electron $\rightarrow e^-$ cloud makes up

99.9999999% of the volume of the atom

molybdenum	← element name
42	← atomic number ($\#p^+$)
Mo	← atomic symbol
95.94	← atomic mass (average mass)

1. Atomic Number $\rightarrow \#p^+$

f. Each element has a specific atomic number

g. In a NEUTRAL ATOM, this is also the $\#e^-$

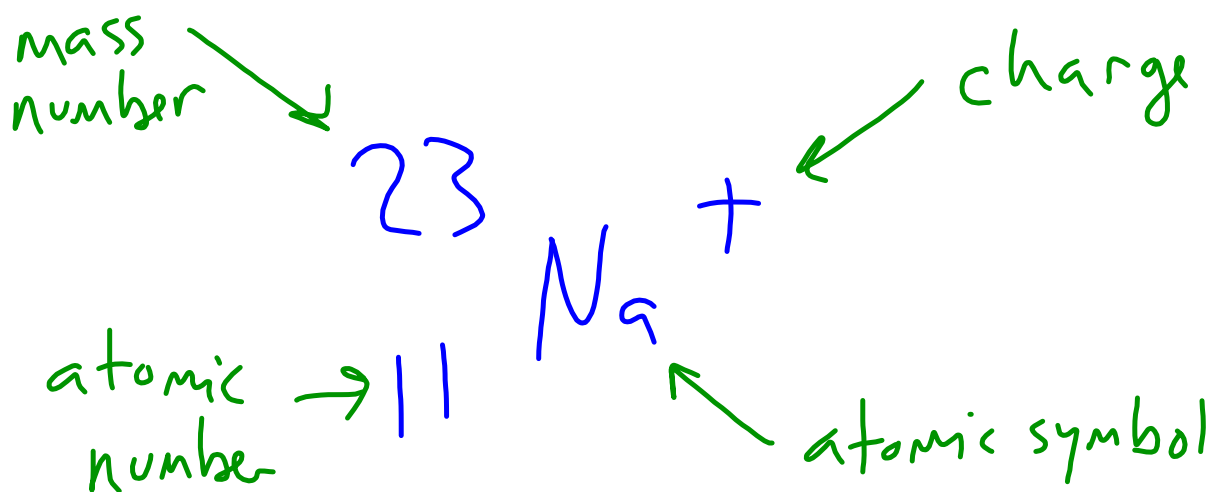
2. (Average) Atomic mass is an average mass of each of the different types of isotopes found in nature

3. Mass number is the mass of a specific isotope

a. Sum of protons and neutrons

b. Mass number = $p^+ + n^0$

4. Isotope/Ion Notation:



- When we write an atom's name, there are two parts:

